

**APPENDIX D**  
**SOLID WASTE SORTING PROTOCOL**

## Detailed Protocol for the Waste Characterization Field Study Capital Region Solid Waste Management Plan

### 1.0 Introduction and Summary

The purpose and objective of this field study is to characterize the constituents of the solid waste and recycled materials stream for the Capital Region Solid Waste Planning Unit. Characterizing the local waste stream will provide valuable information for planning future improvements to local recycling efforts as well as for evaluating the feasibility of alternative solid waste management systems. Another purpose of the study is to examine differences in solid waste composition collected by a municipal agency (such as the City of Albany DGS) and commercial haulers servicing commercial, industrial or institutional customers as well as multi-family dwellings.

The field study will be done over a 5 day work week Monday through Friday during the week of February 23rd. The week will be used to sample and characterize solid waste deliveries to the Rapp Road Landfill as well as sample and characterize curbside recyclables collected by the City of Albany DGS. .

The program will generally follow the American Society of Testing Materials Standard Test Method for Determination of the Composition of Unprocessed Municipal Solid Waste, ASTM D5231-92 (Reapproved 2003). This test method describes procedures for measuring the composition of unprocessed municipal solid waste (MSW) by employing manual sorting. This test method applies to determination of the mean composition of MSW based on the collection and manual sorting of a number of samples of waste over a selected time period covering a minimum of one week. This test method includes procedures for the collection of a representative sorting sample of unprocessed waste, manual sorting of the waste into individual waste components, data reduction, and reporting of the results.

Waste and recyclable delivery vehicles will be selected randomly from eligible collection routes and representative samples will be secured from each of load. Samples will be sorted into separate containers for each of the designated categories, after which the constituents will be weighed and the results tallied. The following 39 waste and recyclable categories will be sorted as part of this study:

- Newspaper
- Magazines
- Corrugated
- Gable top cartons and drink boxes
- Paperboard
- Books, including phone directories
- Mixed Office paper
- Other Paper
- Plastic containers (PET) #1 Non-bottle bill

Plastic #1 - bottle bill containers  
Plastic containers (HDPE) #2  
Other Plastic containers  
Film Plastic and plastic bags  
Other Plastics  
Food Waste  
Textiles and leather  
Rubber  
Disposable Diapers  
Ferrous metal/bi-metal cans  
Aerosol cans  
Other ferrous metal  
Aluminum cans – non bottle bill  
Aluminum cans – bottle bill  
Other non-ferrous metal  
Electronics  
Glass bottles - bottle bill  
Glass bottles - non bottle bill sorted by color:

- Clear
- Amber
- Green

Flat Glass and other Glass  
Wood  
Rubble  
Yard Waste  
Fines  
HHW  
Lead Acid Batteries  
Other batteries  
Medical or Pharmaceutical waste  
Miscellaneous

It is anticipated that the sorting and sampling crew will consist of 7 people, including one Site Supervisor responsible for vehicle sampling and oversight, one Crew Chief responsible for oversight of the manual sorting effort, and 5 sorting staff. Detailed work protocols have been developed for the crew with respect to sample selection, sorting, weighing, and clean-up, and these are presented in Sections 2 and 3, below. Appropriate health and safety protocols have been developed for the sorting and sampling crew to minimize exposures to environmental and physical hazards. The health and safety plan is presented in Section 3.

## 2.0 MSW Characterization

The existing building at the Rapp Road Landfill site formerly used for waste tipping and processing will be used for sample collection, sorting and weighing of the MSW (hereafter called the processing building). Waste sample collection and sorting will commence on Monday February 23rd and continue through Friday February 27th, 2009.

## 2.1 Sampling and Sorting Protocol

In the week prior to commencing the field study, the City of Albany DGS will inform haulers using of its landfill that the study will be in progress during the following week.

Preparation for the sampling and sorting program will be conducted as follows:

During the week preceding the first sample collection and sorting, the site supervisor and/or crew chief will:

- complete arrangements for the purchase and rental of the necessary equipment and protective gear;
- visit the landfill site and processing building and finalize any site logistical issues, including location of the exact areas where the waste discharge, sampling, and sorting operations will be conducted, and clean-up and waste disposal arrangement (including contingency for disposal of any hazardous materials discovered during the process);
- Using a random number generator, determine the vehicle numbers that will be sampled on each day, in accordance with the procedure described below.

On Friday February 20th, 2009 a crew training and orientation session will be conducted at a CHA training room to cover the following topics:

- Description of vehicle unloading and collection of samples
- Discussion of components to be sorted
- Discussion of equipment and data collection methods.
- Review of Health and Safety Plan
- Next weeks work schedule and equipment set-up.

This meeting will run from 2 pm to 4 pm. Representatives of the City of Albany DGS who will be participating in some of the study activities will be invited to attend this session.

On Monday, February 23rd, 2009, the entire work crew will arrive at the landfill site at 6:30 AM to commence equipment set up as follows:

- Deliver equipment and supplies to the processing building
- Position the scale on a clean, flat surface and calibrate the scale
- Secure a label to each barrel or receptacle indicating the sorted component to be placed in the receptacle;
- Weigh all empty barrels and receptacles and record tare weights;
- Set up the sorting table on a 10' X10' tarp, and place the receptacles at convenient locations around the table.

During each day starting on Monday February 23rd, randomly selected vehicles carrying MSW will be diverted to the processing building by the Site Supervisor, who will be situated at the scale house. The Site Supervisor will then interview the driver to determine the eligibility of the vehicle for sampling. Eligible vehicles will then be diverted to the processing building for the

sampling and sorting procedure, indicated below. Ineligible vehicles will include vehicles delivering cover soil, contaminated soils, full loads of construction and demolition debris, or full loads of MSW originating outside of the municipalities which are members of the Planning Unit.

The sampling protocol conducted by the site supervisor will then proceed as follows:

- 1) Inform the DGS scale house attendant of the vehicle diverted to the processing building.
- 2) As the selected vehicle moves off the scale the driver will be directed to pull off onto the right shoulder, adjacent to the leachate storage tank. The driver will be interviewed using the Waste Origin Survey Form (Attachment 1).
- 3) As a result of the information received during the interview a determination is then made if the vehicle is suitable for sorting.
  - a. If the vehicle is not acceptable for sorting, the driver will be directed to proceed to the left up the access road to the working face of the landfill. In this case the Site Supervisor will return to the scale house and select the next available vehicle.
  - b. If the vehicle is eligible, the driver will be directed to drive to the processing building.
- 4) After entering the processing building, the driver will be directed to discharge its load in one contiguous pile in a designated area on the tipping floor.
- 5) After discharging, the driver will be directed to leave the processing building and return to the scale house to weigh out.
- 6) Under the direction of the Crew Chief, DGS personnel operating a front end loader or skid steer loader (1 CY minimum bucket size) will remove material longitudinally along one side of the entire pile. The mass of this removed material should be sufficient to form a mass of material which on a visual basis is at least 1,000 lbs, or approximately 4 CY. This removed material shall be mixed, coned and quartered. The Crew chief will randomly select one of the quarters and the front end loader will collect the selected material.
- 7) If the diverted truck is a compartmentalized recyclables truck (i.e. if a truck is delivering separate loads of mixed paper and containers), the sample should be obtained from each of the loads from that truck, approximately 2 CY from each. This removed material shall be mixed, coned and quartered. The Crew chief will randomly select one of the quarters and the front end loader will collect the selected material.
- 8) The selected sample will be transported by front end loader and deposited at a designated location in the sorting area.
- 9) The sorters will transfer the sample to the sort table, and will generally open all containers and remove the contents prior to sorting. An exception will be in the case of a container containing a household hazardous waste (HHW). In this case both the container and its contents will be sorted as the HHW.
- 10) Composite items will be observed to judge the major component in the composite by weight, and will then be sorted according to its component constituent.
- 11) Continue sorting all items until the maximum remaining particle size is approximately ½ inch. These particles will fall through a ½ inch screen will be collected on a tarp beneath the screen.

- 12) After sorting is complete, record the gross weight of each storage container and of any waste items sorted but not stored in containers. Gross weight and tare weight should be recorded for each material component and container on the Sort Data Sheet.
- 13) Reweigh empty containers if they appear wet and record new tare weights if necessary.
- 14) Clean up the sorting area and the designated vehicle discharge area of any waste material. HHW, Electronic Waste, and Lead Acid Batteries will be segregated from other remaining waste stream components so that they can be properly handled.
- 15) These procedures will be documented by a sufficient photographic record taken by a member of the sorting crew.

After sorting of the sample from a collection vehicle is nearly complete, the Crew Chief will inform the Site Manager (via two-way radio) that a new vehicle may be selected for sampling.

## **2.2 Personnel Responsibilities**

Assigned DGS Employee – Operate front end loader to select waste samples at the direction of CHA Crew Chief, and to move waste and sampled material to designated area after samples are complete, so that the waste material can be transferred for disposal in the landfill.

CHA Site Supervisor – Overall supervision of the waste characterization field study. Also responsible for interviewing drivers and completing the Waste Origin Survey Forms.

CHA Crew Chief – Responsible for supervision of the waste sorting effort and staff, and compilation of the sort data sheets.

CHA Staff – responsible for set-up, sample loading, sorting, weighing, and clean-up.

## **3.0 Health and Safety Plan**



CLOUGH HARBOUR & ASSOCIATES LLP

# SITE HEALTH AND SAFETY PLAN

## PROJECT INFORMATION

<b>Project Name:</b> Albany Landfill Solidwaste Characterization Study		<b>CHA Project No.</b> 19283	
<b>Project Start Date:</b> 2/23/09 <b>Completion Date:</b> 2/27/09		<b>Weather:</b>	
<b>Project Location:</b> 2/23/09 - landfill		<b>Project Task:</b> 2/23/09 - Classification of Solid Waste per ASTM procedure	
<b>Description of Work:</b> The field crew will be sorting solid waste into 39 different classifications from randomly selected loads. Loads will be approximately 250 lbs and will be transferred from the concrete floor onto work tables using rakes and shovels. Solid waste will be sorted into classifications and placed in corresponding bins.			
<b>Key Personnel:</b>	Ken Gallagher <i>Project Manager</i>	Sarah Johnston <i>Field Team Leader</i>	Jamie Herrick <i>Site Safety Officer</i>
<b>Description of Hazards:</b> heavy equipment, wet/slippery floors, use of rakes and shovels, climatic conditions, household hazardous waste, biomedical waste, human and animal waste, glass and other sharp objects.			

TASK HAZARDS				TASK SAFETY MEASURES & PPE	
<b>Eye</b>	Chemical Exposure	Yes <input type="checkbox"/>	No <input type="checkbox"/>	<input checked="" type="checkbox"/> Safety Glasses <input type="checkbox"/> Safety Goggles <input type="checkbox"/> Face Shield <input type="checkbox"/> Shaded Lenses	
	High Heat/Cold	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
	Dust/Flying Debris	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
	Impact	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
	Light/Radiation	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
<b>Head</b>	Impact	Yes <input type="checkbox"/>	No <input type="checkbox"/>	<input checked="" type="checkbox"/> Hard Hat: <input checked="" type="checkbox"/> Orange or <input type="checkbox"/> White or <input type="checkbox"/> Blue <input type="checkbox"/> Reflector Tape (Required for night operations)	
	Electrical Shock	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
	Lack of Visibility	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
<b>Foot</b>	Chemical Exposure	Yes <input type="checkbox"/>	No <input type="checkbox"/>	<input checked="" type="checkbox"/> Work Boots <input checked="" type="checkbox"/> Steel Toed Boots <input type="checkbox"/> Ankle Protection <input type="checkbox"/> I/75 C/75 (Impact/Compression) <input type="checkbox"/> Rubber Boots <input type="checkbox"/> Cd Type 1 or 2 (Conductive) <input checked="" type="checkbox"/> Insulated Boots <input type="checkbox"/> PR (Puncture Resistant) <input checked="" type="checkbox"/> Non-slip Soles <input type="checkbox"/> Mt/70 or 50 or 30 (Metatarsal) <input type="checkbox"/> Chemical resistant <input type="checkbox"/> EH (Electrical Hazard) <input type="checkbox"/> SD Type I or II (Static Dissipative)	
	High Heat/Cold	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
	Impact/Compression	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
	Slips/Trips	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
	Puncture	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
	Slippery/Wet Surface	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
	Explosive/Flammable Atmospheres	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
	Electrical	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
<b>Hand</b>	Chemical Exposure	Yes <input type="checkbox"/>	No <input type="checkbox"/>	<input type="checkbox"/> Work Gloves <input type="checkbox"/> Rubber Gloves <input type="checkbox"/> Leather Gloves <input type="checkbox"/> Nitrile Gloves <input checked="" type="checkbox"/> Latex Gloves <input type="checkbox"/> Insulated Gloves <input type="checkbox"/> Vinyl Gloves <input checked="" type="checkbox"/> Kevlar Gloves <input checked="" type="checkbox"/> Neoprene Gloves <input type="checkbox"/> Butyl Gloves	
	High Heat or Cold	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
	Cuts/Abrasion	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
	Puncture	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
	Electrical Shock	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
	Bloodborne Pathogen	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
		Yes <input type="checkbox"/>	No <input type="checkbox"/>		
<b>Body/Torso</b>	Chemical Exposure	Yes <input type="checkbox"/>	No <input type="checkbox"/>	<input checked="" type="checkbox"/> Tyvek Suits: <input type="checkbox"/> White or <input checked="" type="checkbox"/> Yellow <input type="checkbox"/> UV Protection <input checked="" type="checkbox"/> First Aid Kit <input type="checkbox"/> Coveralls <input type="checkbox"/> Traffic Cones <input checked="" type="checkbox"/> Reflective Vest <input type="checkbox"/> Signage <input type="checkbox"/> Insect Repellent <input checked="" type="checkbox"/> 2- Way Radios	
	Extreme Heat/Cold	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
	Abrasion	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
	Impact	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
	Electrical Arc	Yes <input type="checkbox"/>	No <input type="checkbox"/>		

	Biological Hazards	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<input type="checkbox"/> Tick Removal Kit	<input type="checkbox"/> Flashlight
<b>Fall</b>	Fall Hazard	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	<input type="checkbox"/> Harness	<input type="checkbox"/> Fall Protection Lanyard
<b>Noise</b>	Noise Hazard	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	<input type="checkbox"/> Ear Plugs	<input type="checkbox"/> Ear Muffs
<b>Respiratory</b>	Chemical Exposure	Yes <input type="checkbox"/>	No <input type="checkbox"/>	<input type="checkbox"/> Respirator: <input type="checkbox"/> ½ Face or <input type="checkbox"/> Full Face	
	Confined Spaces	Yes <input type="checkbox"/>	No <input type="checkbox"/>	<input type="checkbox"/> Cartridge: <input type="checkbox"/> P or <input type="checkbox"/> OV or <input type="checkbox"/> C	
	Particulate Exposure	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
	Welding Hazard	Yes <input type="checkbox"/>	No <input type="checkbox"/>		

**SITE CONTROL**

<b>Site Control/Site Security<sup>1</sup>:</b> NA <i>Describe Measures</i>	M & PT: <input type="checkbox"/> Y <input checked="" type="checkbox"/> N <i>If yes, sketch information on separate sheet</i>
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**Confined Space Entry:**  Y  N  
*If Yes, Attach Permit*

**Decontamination:**  Y  N cleaning solution will be available to clean the rubber gloves, glasses, tools, etc.  
*If Yes, Describe Procedures*

**Site Monitoring<sup>2</sup>:**  Y  N a four gas meter will be used to monitor the air throughout the duration of the project.  
*If Yes, Describe Procedures*

**CONTINGENCY PLAN**

<b>Emergency Contacts:</b> <i>Provide Telephone Numbers</i>	Police: 911 Ambulance: 911  Fire: 911 Hospital: St. Peters/ER-525-1324 AMC ER - 262-3131	Client Contact: Joe Giebelhaus, Solid Waste Manager,  Client Phone #: cell 229-7806 ; office 869-3651 CHA PM Phone #: Frank LaVardera 424-3420 cell Ken Gallagher 201-232-3407 cell  Poison Control: 800 336-6997
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**Route to Hospital:** see attachment for directions  
**Communication:**  Cell Phone  Nearest Pay Phone  Pager

**Comments: Dust masks and scented products will be provided for odor control if necessary (optional). Anti-bacterial lotion will be on-site. Drinking water will be located in a convenient location.**

**PLAN SIGN-OFF**

Name:	Name:	Name:	Name:
X:	X:	X:	X:
Date:	Date:	Date:	Date:
Name:	Name:	Name:	Name:
X:	X:	X:	X:
Date:	Date:	Date:	Date:

1 Who is providing site control/site security, if any, for this task? Examples of Site Control/Site Security include police, client representative(s), owner(s), CHA or client supervisors

2 What are you monitoring on site, if any, for this task? Examples of Site Monitoring include air monitoring, like carbon monoxide or oxygen levels or wet bulb temperatures